What is claimed is:

1.   A method for storing data by a computer dividing redundant data into a plurality of volumes, distributing and storing the volumes in a plurality of scattered storage units through a network, comprising:

computing an evaluation value indicating desirability of each of the scattered storage units to be used based on a bandwidth, a communications cost, and a physical distance between a node to which a write request is issued and a storage unit; and

selecting a plurality of storage units as an optimum storage set from among the scattered storage units based on the evaluation value.

2.   The method according to claim 1, wherein

in computing the evaluation value, a hop count from a node to which the write request is issued to each storage unit is further used.

3.   The method according to claim 1, further comprising

providing the storage unit as a virtual

storage unit for a user of the system.

4. The method according to claim 1, further comprising:

5   when the data is read from the storage set, reading from each storage unit volumes not containing a redundant portion among the plurality of volumes written to the storage set; and

       reconstituting the data using the read volumes.

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5. The method according to claim 3, further comprising:

       when the data is read, computing a use priority indicating high response based on the

15   bandwidth and the cost for each storage unit; and

       determining which volumes among the plurality of volumes are to be read from each storage unit as volumes not containing a redundant portion based on the use priority.

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6. The method according to claim 1, further comprising

       storing a replica of a first volume in the plurality of volumes in a storage unit not selected

25   as the storage set.

7. The method according to claim 6, further comprising

when a replica of the first volume is generated, based on the evaluation valueselecting a method from between two generating method based on the evaluation value, that is, replicating the first volume from a storage unit storing the first volume, and regenerating the first volume using redundancy from volumes other than the first volume in the plurality of volumes.

8. The method according to claim 6, further comprising

selecting a storage unit storing a replica of the volume from among the storage units not selected as the storage set based on the evaluation value.

9. The method according to claim 6, further comprising

writing a volume in a multicast system to a plurality of storage units storing the same volume.

10. The method according to claim 6, wherein

when a replica of the first volume is written
to a storage unit, a writing process is performed
in plural operations.

5   11.   The method according to claim 1, further
comprising

when a fault occurs in the first storage unit
in the storage set, limiting a write to other
storage units in the storage set.

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12.   The method according to claim 1, further
comprising

when a fault occurs in a third storage unit in
the storage set, selecting based on the evaluation
15   value a fourth storage unit other than a storage
unit selected as the storage set instead of the
third storage unit.

13.   The method according to claim 1, further
20   comprising:

after selecting the storage set, reselecting a
storage set in each node at a predetermined timing;
and

when there is a volume not used by any node as
25   a result of reselection, deleting the volume from a

storage unit.

14. The method according to claim 13, wherein

the predetermined timing refers to a predetermined period after previous selection or a timing of changing a state of a volume.

15. The method according to claim 1, further comprising:

after reading the data, temporarily storing the data for a predetermined period in an arbitrary storage unit; and

when data is read within the predetermined period, reading temporarily stored data from the storage unit.

16. A method according to claim 1, further comprising:

temporarily storing data specified in a write request within a predetermined period in a temporary storage area;

retrieving data from the temporary storage area after the predetermined period;

dividing the data into a plurality of volumes; and

writing the plurality of volumes in the storage set.

17. The method according to claim 15, further comprising

when a reading or writing process is performed on data including the temporarily stored data, reading or writing only a portion of data not containing the temporarily stored data.

18. The method according to claim 1, further comprising

when the plurality of volumes are written to the storage set, prohibiting a writing process on the storage set until a write is completed for a node to which the write request is issued.

19. The method according to claim 18, further comprising

determining a storage unit as a representative storage unit from among a plurality of storage units storing the same volumes, wherein:

in prohibiting a writing process in the plurality of storage units,

prohibiting a writing process to the

representative storage unit is performed by a node to which the write request is issued; and

prohibiting a writing process to a storage unit other than the representative storage unit is performed by the representative storage unit.

20. The method according to claim 19, wherein the representative storage unit is a storage unit for storing a volume as original data.

21. A computer-readable storage medium storing a program used to direct a computer to control processes of dividing redundant data into a plurality of volumes in a system comprising storage units scattered through a network, and distributing and storing volumes in a plurality of storage units, comprising:

computing an evaluation value indicating desirability of each of the scattered storage units to be used based on a bandwidth, a communications cost, and a physical distance between a node to which a write request is issued and a storage unit; and

selecting a plurality of storage units as an optimum storage set from among the scattered

storage units based on the evaluation value.

22. A control device which controls dividing redundant data into a plurality of volumes in a system having scattered storage units through a network, and distributing and storing volumes in a plurality of storage units, comprising:

route management means for computing an evaluation value indicating desirability of each of the scattered storage units to be used based on a bandwidth, a communications cost, and a physical distance between a node to which a write request is issued and a storage unit; and

storage set management means for selecting a plurality of storage units as an optimum storage set from among the scattered storage units based on the evaluation value.

23. A control device which controls dividing redundant data into a plurality of volumes in a system having scattered storage units through a network, and distributing and storing volumes in a plurality of storage units, comprising:

a route management unit computing an evaluation value indicating desirability of each of

the scattered storage units to be used based on a bandwidth, a communications cost, and a physical distance between a node to which a write request is issued and a storage unit; and

5   a storage set management unit selecting a plurality of storage units as an optimum storage set from among the scattered storage units based on the evaluation value.